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**Part I: Overview of Business**

- M. A. Ford founded in 1919
- Started making rotary files and has grown to make High Performance Cutting Tools
- Standard cutting tools (small and large end mills, countersinks, burrs and reamers), custom cutting tools and tool reconditioning

**Part II: Job Specifics**

- Talk with operators to determine what CNC files need to be kept and discarded.
- Sort through files and give them a standard naming convention
- Have machines and computers communicate via the use of HyperTerminal to transfer data.

**Part III: Introduce the Problem**

- Tool life in machining is critical.
- A 9 Flute Tool is having issue getting good tool life
- Used in the aerospace industry to cut high temperature alloys
  - Normal Flute
  - Segmented Flute – ½ tool life (Prior knowledge would say that tool life should double, not decrease)

**Part IV: Background**

- Skills needed
  - Basic Math
  - Critical Thinking
  - Feeds and Speeds
  - G & M Code
- Research M.A. Ford Manufacturing
- Research Material
  - 304 Stainless Steel

**Part V: Business Solution**

- M.A. Ford Research and Development Department tests tools in various conditions; including speeds, feeds, materials, failure point, and coatings.
- 4 tools (2 normal / 2 chip breakers) will be destructive tested with the same parameters including feeds and speeds, to determine a working range.

**Part VI: Student Solutions**

- Team will write G & M Code to test tools with the same parameters as the M.A. Ford Research & Development Department.
- Team will test one tool under the same conditions and compare to the manufacturer specs
- Will the results be the same? Why? Why not?